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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,890	12/14/2000	Brian D. Kling	BS00-198	5761

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EXAMINER

DELGADO, MICHAEL A

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,890

Applicant(s)

KLING ET AL.

Examiner

Michael S. A. Delgado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-8, 17, 19-22, 24, 26-37 and 40-42 rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,031,818 by Lo et al.

In claim 1, Lo teaches about a method for data distribution and recovery comprising the steps of (Fig 1) (Fig 5):

- (a) attaching unique sequence numbers to data packets (Col 3, lines 50-60);
- (b) broadcasting the data packets from a server “source” to a plurality of clients and an archive “server” (Col 3, lines 25-35) (Col 8, lines 55-67);
- (c) storing the data packets with their attached unique sequence numbers (Col 3, lines 50-60);
- (d) monitoring for a missing sequence number at a client (Col 3, lines 50-60);
- (e) sending a query from the client that requests re-transmission of a missing data packet having the missing sequence number (Col 2, lines 5-15); and
- (f) transmitting to the client the missing data packet (Col 2, lines 5-15).

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In claim 2, Lo teaches about a method of claim 1, wherein the archive stores the data packets with their attached unique sequence numbers, receives the query from the client, and transmits to the client the missing data packet (Col 3, lines 25-35) (Col 3, lines 50-60).

In claim 3, Lo teaches about a method of claim 1, wherein the server stores the data packets with their attached unique sequence numbers, receives the query from the client, and transmits to the client the missing data packet (Col 3, lines 25-35) (Col 3, lines 50-60).

In claim 4, Lo teaches about a method of claim 1, wherein the unique sequence numbers identify the data packets and denote an order in which the data packets are broadcast (Col 3, lines 50-60).

In claim 5, Lo teaches about a method of claim 4, wherein the unique sequence numbers contain enough digits to ensure that no two data packets receive identical sequence numbers (Col 3, lines 50-60).

In claim 7, Lo teaches about a method of claim 1, wherein the step of monitoring for a missing sequence number at the client comprises the steps of:

(i) receiving a first data packet and recording a first unique sequence number associated with the first data packet (Col 13, lines 15-25);

(ii) receiving a second data packet and recording a second unique sequence number associated with the second data packet (Col 13, lines 15-25);

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comparing the first unique sequence number to the second unique sequence number (Col 13, lines 15-25); and

(iv) if the second unique sequence number is not in sequence after the first unique sequence number, then determining that the client is missing a sequence number (Col 13, lines 15-25).

In claim 8, Lo teaches about a method of claim 7, further comprising the step of:

(v) if the second unique sequence number is in sequence after the first unique sequence number, then determining that the client is not missing a sequence number (Col 13, lines 15-25).

In claim 17, Lo teaches about a system for data distribution and recovery comprising (Fig 1) (Fig 5):

- (a) a server “source” having broadcast messaging software (Col 3, lines 25-35);
- (b) a plurality of clients in communication with the server through the broadcast messaging software (Col 3, lines 25-35) (Col 8, lines 55-67); and
- (c) an archive “server” in communication with the server “source” through the broadcast messaging software, and in communication with the plurality of clients, wherein the archive stores data broadcast by the server (Col 3, lines 25-35) (Col 8, lines 55-67),

wherein the server receives a data packet, attaches a unique sequence number to the data packet, and broadcasts the data packet to the plurality of clients and the archive using the broadcast messaging software (Col 3, lines 50-60) (Col 8, lines 55-67),

wherein the archive receives and stores the data packet broadcast by the server (Col 3, lines 50-60), and

wherein each client of the plurality of clients receives the data packet broadcast by the server, uses the unique sequence number to determine whether a previous data packet is missing, and, if the previous data packet is missing, requests the previous data packet from the archive (Col 3, lines 25-35) (Col 3, lines 50-60) (Col 8, lines 55-67).

In claim 19, Lo teaches about a system of claim 17, wherein each client of the plurality of clients requests the previous data packet through a point-to-point “UDP-end to end” communication with the archive (Col 3, lines 45-50).

In claim 20, Lo teaches about a system of claim 17, wherein each client of the plurality of clients requests the previous data packet through a broadcast communication with the archive (Col 2, lines 5-15).

In claim 21, Lo teaches about a system of claim 17, wherein the unique sequence number identifies the data packet and denotes an order in which the data packet is broadcast in relation to other data packets (Col 3, lines 50-60).

In claim 22, Lo teaches about a system of claim 21, wherein the unique sequence number contains enough digits (2^{16}) to ensure that no two data packets receive identical sequence numbers (Col 3, lines 50-60).

In claim 24, Lo teaches about a system of claim 17, wherein using the unique sequence number to determine whether a previous data packet is missing comprises (Col 13, lines 15-25):

(i) comparing the unique sequence number to a last received unique sequence number, wherein in the last received unique sequence number corresponds to a data packet last received before the data packet (Col 13, lines 15-25); and

(ii) if the unique sequence number is not in sequence after the last received unique sequence number, then determining that a previous data packet is missing (Col 13, lines 15-25).

In claim 26, Lo teaches about a system of claim 17, wherein the broadcast messaging software is TIB Rendezvous (Col 3, lines 25-35). The TIB Rendezvous is a off the shelf software that can be purchased commercially. The function of the prior art is equivalent.

In claim 27, Lo teaches about a system of claim 17, wherein the archive comprises a client Component and an archiving process component (Col 3, lines 25-35) (Col 3, lines 50-60), (software implementation of RTP and UDP protocol that allows communication between client and server)

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wherein the client component is adapted to interface with the server, is adapted to receive and store the data packet broadcast by the server and the unique sequence number attached to the data packet, and is adapted to return an acknowledgement to the server indicating the unique sequence number of the received data packet (Fig 1) (Col 3, lines 50-60); (Col 3, lines 50-60), and

wherein the archiving process component is adapted to listen for a query from a requesting client of the plurality of clients, to read a referenced sequence number of the query, to retrieve a data packet corresponding to the referenced sequence number, and to return the data packet corresponding to the referenced sequence number to the requesting client (Col 2, lines 5-15).

In claim 28, Lo teaches about a system of claim 27, wherein the client component and the archiving process component are a single software program (Col 3, lines 50-60).

In claim 29, Lo teaches about a system of claim 27, wherein the client component is identical to software provisioned on the plurality of clients, except that the client component is modified to provide an acknowledgement to the server (Col 3, lines 50-60).

In claim 30, Lo teaches about a system of claim 17, wherein the plurality of clients is a dynamic client set in which individual clients are dynamically added to or removed from the plurality of clients without requiring administrative changes at the server (Col 2, lines 20-30), and (This feature comes as a result of the independence that exist between client and server).

wherein new clients are configured to pick up broadcasts from the server from a time that the new clients are added, and are configured not to request data packets transmitted prior to that time(Col 2, lines 20-30) (This feature comes as a result of the independence that exist between client and server).

In claim 31, Lo teaches about a system of claim 17, wherein the client stores the data packet and the previous data packet onto a disk (Col 3, lines 50-60). (Hard disk has to be present for storage to be possible)

In claim 32, Lo teaches about a system of claim 31, wherein the data packet and the previous data packet include their unique sequence numbers, and wherein the unique sequence numbers are stored as part of a data packet file name (Col 3, lines 50-60).

In claim 33, Lo teaches about a system of claim 31, wherein the data packet and the previous data packet include their unique sequence numbers, and wherein the unique sequence numbers are stored as part of contents of the data packet and the previous data packet (Col 3, lines 50-60).

In claim 34, Lo teaches about a system of claim 17, wherein the client acts as an application program interface for a program that processes data packets, such that the data packets are delivered directly to the processing program (Col 4, lines 5-10).

In claim 35, Lo teaches about a system of claim 17, wherein the server and the archive are a single physical computer (Fig 5). (The combining of two or more functions is considered equivalent to the system function of the prior art).

In claim 36, Lo teaches about a system of claim 17, wherein the server and the archive are separate physical computers (Fig 1).

In claim 37, Lo teaches about a method for distributing data comprising (Fig 1):

- (a) attaching a unique sequence number to each of a sequence of data packets (Col 3, lines 50-60);
- (b) transmitting the data packets to a plurality of clients and to an archive (Col 3, lines 25-35) (Col 8, lines 55-67);
- (c) receiving the data packets at the archive (Col 3, lines 25-35);
- (d) storing the data packets at the archive (Col 3, lines 50-60);
- (e) determining whether a client of the plurality of clients has not received at least one of the data packets (Col 3, lines 50-60); and
- (f) re-transmitting the data packets that have not been received by the client to the client (Col 2, lines 5-15).

In claim 40, Lo teaches about a method of claim 37, wherein the step of determining whether a client of the plurality of clients has not received at least one of the data packets comprises identifying an absence of at least one unique sequence number at the client (Col 3, lines 50-60).

In claim 41, Lo teaches about a method of claim 37, wherein transmitting the data packets to a plurality of clients and to an archive comprises broadcasting the data packets (Col 3, lines 25-35) (Col 8, lines 55-67).

In claim 42, Lo teaches about a method of claim 37, wherein re-transmitting the data packets that have not been received by the client to the client uses a point-to-point communication (Col 3, lines 45-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al in view of US Patent No. 6,523,114 by Barton.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

In claim 6 Lo teaches all the limitation but does not explicitly teach about a method of claim 4, wherein the unique sequence numbers are 32-bit sequence numbers.

The use of a 32-bit sequence number is well known in the art as disclosed by Barton (Col 10, lines 5-15). It would have been obvious at the time of the invention for some one of ordinary skill to use a 32-bit sequence number in order to prevent wrap around errors.

The operation of sequence numbering is cyclic. In large data frame transmission, a small number of sequence number bits will result in a small total count that will be easily exhausted by the large number of packages within the frame. This will result in wrap around error, which

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causes multiple packets within the frame to have the same number and thus makes the packets indistinguishable from each other.

In claim 23, the system of claim 21, wherein the unique sequence number is a 32-bit sequence number (Covered in 6).

Claims 9-12, 14-15, 18, 25 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al in view of US Patent No. 6,701,351 by Gann.

In claim 9, Lo teaches all the limitation but does not explicitly teach about the specific handshaking that applicant use during a data transfer.

The handshaking protocol is well know in the art as Gann teaches about a method of claim 1, wherein the step of broadcasting the data packets from a server "local storage" to a plurality of clients and an archive "central processing location" further comprises the step of (Col 5, lines 15-25)

waiting, at the server, for an acknowledgement from the archive for each individual data packet of the data packets (Col 5, lines 15-25),

wherein if the server receives the acknowledgement, then the archive stores the individual data packet (Col 5, lines 15-25), and

wherein if the server does not receive the acknowledgement, then the server stores the individual data packet (Col 5, lines 15-25).

It would have been obvious to some one of ordinary skill at the time of the invention to use a handshaking protocol to confirm that the intended data transfer was successful.

Data communication media are unreliable and the provider of a data needs to be reassured that the data that was sent had arrived at its destination successfully. Knowing that the data is safe else where there will not be a need to have duplicate copies which reduces the amount of storage needed.

In claim 10, Lo combines with Gann, teaches about a method of claim 9, wherein the step of sending a query comprises sending the query from the client to the archive (Col 2, lines 5-15), and

wherein, if the archive does not respond or if the archive does not have the missing data packet, then the step of sending a query further comprises sending the query to the server (Covered in 9).

In claim 11, Lo combines with Gann, teaches method of claim 10, wherein, if the archive has the missing data packet, then the archive transmits the missing data packet to the client (Col 2, lines 5-15).

In claim 12, Lo combines with Gann, teaches method of claim 11, wherein the archive transmits the missing data packet to the client in a point-to-point communication (Col 5, lines 45-50).

In claim 14, Lo combines with Gann, teaches method of claim 10, wherein, if the server has the missing data packet, then the server transmits the missing data packet to the client (Col 2, lines 5-15).

In claim 15, Lo combines with Gann, teaches method of claim 14, wherein the server transmits the missing data packet to the client in a point-to-point communication (Col 5, lines 25-35) (Col 5, lines 40-60).

In claim 18, Lo combines with Gann, teaches system of claim 17, wherein the archive is also in communication with the server through point-to-point communication (Covered in 9), and wherein the archive provides the server with an acknowledgement to indicate that the archive has received data broadcast by the server (Covered in 9).

In claim 25, Lo combines with Gann, teaches system of claim 17, wherein the server stores the data packet if the archive is off line (Covered in 9).

In claim 38, Lo combines with Gann, teaches method of claim 37, wherein after the step of receiving the data packets at the archive, the method further comprises sending an acknowledgement for the each of the sequence of data packets that is received (Covered in 9).

In claim 39, Lo teaches about a method of claim 38, wherein the acknowledgement references the unique sequence number for the each of the sequence of data packets that is received (Col 5, lines 40-60) (Covered in 9).

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,031,818 by Lo et al and US Patent No. 6,701,351 by Gann in view of US Patent No. 6,167,457 by Eidson et al.

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In claim 13, Lo combines with Gann, teaches all the limitation but does not explicitly teach about a method of claim 11, wherein the archive transmits the missing data packet to the client in a broadcast communication using subject-based addressing.

The use of subject-based addressing is well known in the art as disclosed by Eidson (Col 1, lines 25-40). It would have been obvious to some one of ordinary skill at the time of the invention to use a subject-based addressing scheme in order to reduce the complexity involved in broadcast addressing.

By tagging addresses with well-known names, it removes the complexity of dealing with IP addresses that shows no human intelligent link to the object that they represent. By using subject-based addressing, in subscription broadcasting, the task of classifying subscription is greatly simplified as the subject-based addressing represents real physical entity that is easily understood by a human operator.

In claim 16, Lo and Gann combines with Eidson, teaches about a method of claim 14, wherein the server transmits the missing data packet to the client in a broadcast communication using subject-based addressing (Covered in 13).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,335,933 by Mallory teaches about a limited automatic repeat request protocol for frame-based communication channels.

US Patent No. 5,515,508 A by Pettus et al., teaches about a client server system and method of operation including a dynamically configurable protocol stack.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. A. Delgado whose telephone number is 703-305-8057. The examiner can normally be reached on 7.30 AM - 5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM A CUCHLINSKI JR can be reached on (703)308-3873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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